

National Golf Course Owners Association

Study of Golf Course Owner Responsibilities in Planning and Construction

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As a golf course architect and land planner, I am frequently contacted by people who love the game of golf, and want to either buy an existing course, or they want to build one from scratch. Sometimes, these calls come from an experienced golf developer who has done their due diligence, and they simply want me to help with land planning and golf course design. My reaction when called by experienced developers is to ask basic questions such as, "Where is the project?" "Do you want to build a daily fee course, or will it be private?" "Do you have enough land and water?" And, "Is the funding in place, and what is the budget?" Once these questions are answered, we typically start the exchange of site analysis information, topographic maps, key contacts, and we plan to meet at the site for initial "walk throughs."

However, there are also calls that come in from people who are new to the golf business. They are generally people who also love the game of golf, and have always wanted to build their own course. These calls are always delicate to handle due to the fact that you want to do the work, but you must also find out if the owner has any idea what they are getting in to. An inexperienced golf developer can lead to a tremendous amount of additional work as the golf architect must do a bit of education along the way.

While owning your own course sounds exciting, one must also understand that the golf business is extremely competitive, and is usually tied very closely to the economy as a golfers amount of play is usually based on discretionary income. When the economy is good, the golf business is good. When the economy is bad, the golf business can be very bad as people typically eliminate "entertainment dollars" from their budgets during hard economic times. This was especially true after the events of September 11, 2001. Not only did the economy take a big hit for a few years, but the fact that people were afraid to travel by air meant that many of the resorts and destination courses faced incredible financial difficulty. On the other hand, this did mean that some local courses did a little bit better as golfers tended to stay home to play rather than traveling to play. Fortunately today, the economy is strong and the entire golf industry is showing a strong rebound.

As I talk to the "new developer," I ask all of the basic questions that I ask the experienced developer, but I also spend a large amount of time asking questions about finances and time. Understanding the time required to plan, design, acquire permits, construct and grow-in the course, as well as having the funds to start the project, build the course, endure the grow-in process, accrue all of the carrying costs, and then wait several years to show any profit are, by far, the most misunderstood elements in building and owning a course.

1. The Basic Idea of Owning a Golf Course

- 1. Feasibility of Project (Feasibility Study)** – It is encouraged that a very thorough feasibility study is done at the beginning of each project. Once hired, the feasibility company will take the location of the project and work on 5 mile circles of radius (usually up to 15-20 miles) to determine: if there is competition; what type of competition is present and/or planned; how the competition will effect the viability of your project; what type of absorption you can expect; will the economy support your project; recommended product type and price points, and should you change the scope of your project or consider not doing a project at all. Once this feasibility report is complete, you will need to determine if the projects viability, product types, schedules, and financing options. The cost of the feasibility study depends on how much detail you desire. I have seen the price vary from \$10,000 for a general report, to \$55,000 for a very detailed report.

2. **Golf Not Tied to a Development** - As with any business, the key to success is recovery of expenses and creation of profit. If a golf course is not tied to a residential or commercial development, the owner must be extremely confident that they can pay for the course with membership fees or green fees. Depending on the local golf market, this can be easy or very difficult. The owner must use good judgment, and not let emotion rule this decision.

As a rule of thumb, when building a daily fee golf course, the owner should use the 10/1 rule. This means that the golf fees must be \$10.00 for every \$1,000,000 spent on construction. This means that a \$10,000,000 golf course needs to have green fees in the \$100.00 range. If you cannot meet that ratio, you would either need to rethink construction budgets, or know that you have an additional source of income such as lot premium revenue to offset the costs.

3. **Golf and Related Development Premiums** – There is no question that having a well planned golf course as part of a residential development will create additional income. The questions are, “how will the income be used, and who will create the income?” As an owner of land, you may want to build and own the golf course as part of the development. However, you might also not want to own the golf course, but you want the course as a premium creator for lot sales.
 - a. **Golf Lot Premiums to Pay for Golf** – The Feasibility study will show what kind of premiums can be expected with the inclusion of a golf course in your development. Not only will lots that back up to the golf course be worth more, but every lot in the development will have some level of value since it is part of a golf development. The amount of increase will depend largely on the land plan and if people who own interior lots get any views of the golf course while driving to their home. In this scenario, a portion of the money that is created by the premiums is often used to pay for the golf course. However, one must remember that the cost for building the golf course will usually occur before a significant amount of premiums are created. In this case, the owner must have sufficient financial resources to carry the cost until premium revenue is in hand.
 - b. **Donating Land to a Golf Developer** – In many cases, a developer knows the added value of a golf course, but they do not want to own a golf course. In this case, the developer will donate the land to a golf developer who will be responsible for building and operating the course. Depending on the market, the golf developer may also expect to get a percentage of the premiums for the lot sales to aid in the construction of the golf course. You may wonder why the developer would give up a percentage of lot sales if they are already donating expensive land to the golf developer. The answer lies in the amount of money that is generated by the golf course premiums.

I worked on a preliminary project where the land owner had just over 1,000 acres that was valued at \$30,000 per acre. The local city regulations required that 20% (or 200 acres) of the development be dedicated to open space. The land plan was finalized and the cost/profit projections were completed. These projections showed that the golf course would generate \$42,000,000.00 in additional premiums.

The land owner was to give the 200 acres valued at \$6,600,000.00 to a very experienced golf developer. He also asked that the golf developer build a first class, expensive private golf club that would match the quality of the custom homes that would be built around the course. The preliminary costs for the golf course came in at approximately \$15,000,000.00. That number would have been \$21,600,000 if the golf developer had to buy the land, which would have made a stand alone golf course project completely unrealistic. As the golf market in this area was not real strong at the time, the golf developer knew that it would be difficult to recover \$15,000,000 in a timely manner. As a result, the residential developer committed to donate an additional 10% (\$4,200,000) of

golf lot premiums to the cost of the golf course. The golf developer now needs to only recover \$10,800,000, which made the project feasible in the local golf market.

The residential developer was to donate \$6,600,000 worth of land that was not going to be used anyway. He was also to donate an additional \$4,200,000 to the golf course. As a result, his final golf premium profit to come to \$37,800,000 and he could concentrate on the residential aspect as he did not have to worry about building or owning a golf course.

- c. **Types of golf Course Projects** – A good feasibility study and knowledge of the local golf market will give the golf owner an indication of what type of golf course should be built.
 - i. **Stand Alone Daily Fee** – Golf Course that allows for daily play with no memberships. Usually has a spike in green fees on Friday, Saturday and Sunday.
 - ii. **Stand Alone Semiprivate** – Golf course that has a mixture of daily play and memberships. This situation is common with a private course that is tied to a hotel where guests at the hotel are allowed to play for a fee. Members typically have preferred tee times. The problem with this type of course is the members disliking of guests playing “their” course and not taking care of ball marks, divot repair, and displaying general etiquette
 - iii. **Stand Alone Private** – Golf Course that allows only for member play, or paying guest play with a member. Maintenance and services are provided based on monthly dues paid by members.
- d. **Golf as the Centerpiece of a Development** – Many times a developer will use the construction of a golf course as a catalyst for selling adjacent real estate. A well planned and enjoyable golf course will draw many people to the site, and will create tremendous lot premiums. However, if the golf course is not planned well, and if golfers do not enjoy playing it, this can have a negative impact on the total real estate development. That is why it is imperative that a qualified golf course architect and a land planner work together to create the best “golf development” that the land and budgets will allow.
- e. **Demand for Product Types** – While studying local developments and competition, the feasibility study will give you an indication of product types that would be attractive to the potential buyer. This portion of the feasibility study is valuable to the developer as it gives a clear indication whether you will be looking at a development with large custom lots, or small lots that are suited for a tract home builder. The knowledge of product types will also help the golf architect understand safety setbacks and creation of views into the golf course.
- f. **Price Range** – Be realistic and understand that every place is not North Scottsdale. Egos must be put aside when trying to determine green fees or membership fees. I cannot tell you the number of times I have looked at golf projects and the owner tells me what they think they can get for green fees, and they know they are high but they are “going to do it right.” I look at those numbers and see no reason at all to think that the owner can get that money in a particular market. The golf owner must set green fees at a price that will be attractive to golfers and allow you to recover your cost within five to seven years. Again, a good feasibility study will give you a good indication of price points.

The feasibility study will also give you a indication of price points for housing as well. This is important information to have when deciding what type of course to build. In most areas, it would make little sense to build a \$20,000,000 golf course in the middle of

\$95,000 homes. Conversely, a person spending \$1,000,000+ on a custom home will expect a very nice and well maintained golf course to be built outside their back door.

- g. **Absorption Rates** – This is probably the most important element in golf and/or residential development. How quickly will the product be sold, and how quickly will investments be covered and profit realized? If you are building a private golf club, you will want to know exactly what price points will create demand and selling of memberships. It is very important when deciding on a price that you do not start too high and have to drop prices. This not only upsets people who bought at high prices, but it also makes you look like you are failing and while panicking you are trying to unload something that is not worth the money.

Most golf developers will set a graduated increase in the fees. For example, if you want 350 memberships sold at an average of \$50,000 (\$17,500,000), you might start with a “Founders Group” of fifty memberships priced at \$42,000 (\$2,100,000). This initial influx of money will not only get the ball rolling with notoriety about your course, but it will also get some cash in your hands for expenditures. Then, you can sell the next one hundred memberships at \$47,000 (\$4,700,000). The next one hundred memberships are sold for \$52,000 (5,200,000). The final one hundred are sold for \$57,000 (\$5,700,000). This brings the total income to \$17,700,000.

If you have fees priced correctly, by selling on this graduated scale, you will be able to get people in the door quickly which means you will also get the monthly dues rolling in. You will also be able to see what kind of demand you have for the memberships, which can tell you if you need to keep fees at the lower price for a while longer, or if you can raise the fees quicker with higher demand.

The key is getting people in your development, on your course, and having them spending money.

This graduated scale is also true with the housing. This will be discussed in detail in Section 2: Planning under Selling Lots.

4. Project Funding

a. Types of Funding

- i. **Loans** – Typical way to proceed with projects. You find land and come up with an idea for a development. Create a very detailed Performa. Take it in to a bank and see if they will loan you the money for the project. The key here is interest rates and timing on when the loan will be paid back. Remember that the majority of the money is made on the back end of the project.
- ii. **Investors** – This is where a group of people is looking for some way to invest, save, or hide money for future use. Usually there is a point man that is running the project, and he/she will get a group of investors together to either come up with all of the money, or get the project funding to a point that a bank will come in with majority financing. The key here is to find a point man that is trustworthy.
- iii. **Cash in Hand** – very rare for large projects. This is where an individual has enough money on hand to finance the entire project. Rare because most people with money, do not want to put their own money at risk. As I have been told by many developers, “It is always better to spend someone else’s money.”

- iv. **Partnership with Landowners** – This is something I am seeing more and more of. If a particular piece of property is being sold at \$10,000/acre, a developer will go to the land owner and propose joining up with the developer and the land will be paid for as product is sold. This is good for both groups because the developer does not have to come up with money for the land, and the landowner will usually agree to sell the land at a payback that is higher than the original \$10,000/acre if they are having to hold on to the land longer. In this scenario, the landowner may end up getting an average of \$12-15,000/acre when all is said and done.
 - v. **Donating land to a golf developer** - Discussed in detail above.
- b. **Timing of Funding** – For the inexperienced golf developer, this is usually a shock as they find out how much money is required to get the ball rolling in gathering important base information, and starting to assemble a team. Depending on the climate and the availability to work year round, the issue of initial funding can be the make or break aspect of the project. For example, in a warm climate where you can work year round and have the ability to grass the entire course with over-seeded sod, you have more flexibility than someone in a northern climate that has to hit specific grassing windows due to winter ground freezing. Having to hit specific grassing windows means that construction start up dates are more specific, which goes back to timing of getting drawings done and bidding completed.
- c. **Start up Costs** – These are just a few of the initial expenses that are often overlooked.
- i. **Legal Expenses** – Before a project is started, you will want to make sure that all of the documents and proceedings are legitimate and legal. This requires the involvement of attorneys.
 - ii. **Topography Maps** – It is impossible to do proper planning if you do not have good topographic maps. Depending on the type of site, you may need to have the site flown for aerial photography. These photographs can be computer enhanced to create topography maps at any contour interval desired. The more intervals (meaning going down to one foot intervals as opposed to five foot intervals), the more expense. These aerial topo maps can often cost \$25,000 – 50,000 depending on the severity of the terrain.
 - iii. **Existing Base Map Information** – There is usually research required to find out what type of existing conditions are on a piece of land. This may mean that someone has to go to municipal offices and search for information with regards to easements, power, water, sewer locations, gas lines, future road expansions, preexisting mineral rights ownership, wetlands, fault lines, environmentally sensitive areas, local development limitations, etc. All of the pertinent information needs to be combined with the topo maps to create base map information that will be the foundation of the entire project. This work can be quite time consuming and can tell you if the project has too many limitations to pursue.
 - iv. **Surveying** – It is usually a good idea to hire a survey crew to go out and confirm property lines and points of interest. Depending on the size and intensity of the property, this can be \$25,000 - \$60,000 or more if the site is heavily wooded and steep.

- v. **Printing** – Getting information out to all of the team members can be expensive. However, most companies will have plotting capabilities, so sending PDF files and Auto CAD drawings has made this expense much smaller.
- vi. **Hiring of Specialists** – This is probably the biggest area where mistakes are made. Many times, the developer will bring on a land planner to start laying out the site, and they will not bring on an engineer or golf course architect because they want to save start up money. The land planner will lay out the residential areas and golf course, and the owner will start the permitting process. They will then usually hire an engineer to help with city codes and such. During this time, the engineer sees some problems with the layout from an engineering and hydraulics standpoint, so they make a few changes to the plan. The owner then takes a few more steps in making submittals to the city.

After months of planning and submittals, the golf course architect is brought in and told to design the golf course. The only problem is that the owner has taken away the most important part of golf design from the architect ... the routing. The architect is told that there is a little bit of flexibility, but the land plan has already been submitted and approved by the City. The golf architect looks at the plan and sees the following: fourteen doglegs to the right, eleven forced carries to greens, two holes that are 90 degree doglegs to the right which will cause golfers to hit shots over homes to get to the green, the golf holes are on a ridge above the lots which are in a valley, every par three is 200 yards, every par five is 550 yards, and every par four is 400 yards, the driving range is 200' wide and 230 yards long (including the tee), the cart path crosses a road nine times, the corridor width is 300', and the routing is done in such a way that grading will increase by a minimum two-three hundred thousand cubic yards just to make some holes visible. Then, the owner says they want a "real nice golf course." Believe it or not, this scenario actually happened, and you would be surprised how often situations like this occur.

Now, there are two things that can happen. First, the golf architect can tell the owner what the problems are and say that as much as they want to, they simply cannot do this project because it will hurt their reputation so bad that it could affect the ability to get future work. Second, the owner can go back to the drawing board, redo the plan, and start the submittal process over again. As just mentioned, you would be surprised how often this happens.

Now, the owner realizes that they have a potential disaster on their hands. In an attempt to save \$50,000 – 100,000 in planning expenses, the owner has to make a multimillion dollar decision.

My advice is this, at the very beginning of the project, hire a land planner, golf course architect, and engineer and have them work on the layout together. It is for this reason over the last fifteen years that I have begun to do a lot of land planning for golf developments. I have been able to work very closely with engineers to lay out developments that have been very successful as golf developments.

- d. **Carrying Costs** – Owners need to understand that recovery of investments can be lengthy. Most profit is made on the back end of projects, and the owner must have the financial ability to stay in the game until the profits are realized. One problem area that seems to crop up is not understanding the grow-in period. This is the time between sprigging, or seeding the course, to actual play. In many climates, the

grow-in, or turf establishment period, can be a full year. During that time, the owner has to pay for water, electricity, fertilizer, maintenance equipment, and maintenance staff, while no money is coming in. This can be especially tricky for the golf developer who does not have money coming in from lot sales, or membership sales.

This establishment period leads a lot of developers to sod the entire course. This cuts down the grow-in costs and speeds up the opening to get revenue coming in. Yes, the initial cost is high for sodding, but it is typically a wash in the long run when you study all of the grow-in expenses.

- e. **Profit and Recovery** – Obviously, profit and recovery depends on the market you are in, the health of the economy, and the amount of money you spend. When getting financing, the lending institution will always want their money back first. You will also want to eliminate all other expenses that can drag the project down. As a result, profit is usually not seen until the back end of every project. For this reason, it is important to hold back a percentage of good lots for sale. If you open up all of the lots for sale at once, the best lots sell the fastest, which leaves the less desirable lots.

If you sell all of the best lots quickly, you eliminate the possibility to observe the market and see if you can raise the price of lots over a long period. You will also lose the attraction for buyers to come to your development. However, if you hold back a certain percentage of all levels of lots, you will always have a draw for new buyers at all levels.

5. Key Personnel to hire

- a. **Project Point man with good relationships** – As a busy golf developer, it is usually important to have a point man on each project that can lighten the work load for you. This person should be very knowledgeable in the field, and should have the ability to work well with a lot of people. Putting a golf project together means that many different personalities will have to work together. Having a point man who can work well with people is vital. It is also important for this person to have good relationships with local officials. For obvious reasons, these relationships can make permitting and scheduling run smoother when a lot of submittals need to be made.
- b. **Attorney** – As mentioned earlier, you will want to make sure everything is legal and legitimate from the beginning. While many people get frustrated with legal maneuverings, having an attorney go over all paper work is a good idea.
- c. **Certified Public Accountant** – You will want to have a well qualified money manager study the projected financing, profit and payback schedules before you begin the project. They will also be able to track the progress of the project from a financial standpoint.
- d. **Golf Course Architect** – For successful project, it is imperative that a golf course architect be brought in as soon as possible. This is especially true if the golf architect has land planning experience to aid in the layout of the entire project. On many of the projects that I am hired for, the owner will have me lay out the entire project. Then we will take it to land planners and engineers to check for problems and fine tuning. Once the final routing and land plan is established, I turn over all of the engineering, project theme development, and landscape architecture duties to the land planners and engineers. I then concentrate on the golf course.

Do not let an engineering firm, or land planning firm route the golf course. The routing is the most important aspect of golf course design, and a poor routing will severely hurt the quality of the course and development.

- e. **Land Planner** – If possible, find a land planning firm with a lot of experience in golf developments. Many times, we have to deal with land planners who do not understand safety and circulation issues that are inherent with golf and it makes the process more difficult than it needs to be.
- f. **Engineer** – Once again, find an engineering firm with golf course experience. This will be a significant help when designing outfall structures, pipe and sewer line locations running across the golf course, street elevations, etc. It is always good to hire an engineering firm who has a good relationship with local officials.

6. Information to Pursue Immediately

- a. **Availability of Land** – Many times, I have seen developers who get excited about a piece of property without knowing anything other than the amount of land, the location, and the fact that it is pretty. This can be a real problem if the site has underlying issues that can make the project a complete failure.
 - i. **Site Inventory and Analysis** – Once a piece of property is located, you will want to start a site inventory and analysis. The site inventory will tell you everything that is on, or effects, the land, while the site analysis tells you everything you can do with the land. A typical site inventory will include the following:
 - 1) **Vegetation** – What type of vegetation is on the site, and where is it? Is the vegetation desirable, healthy, can it be transplanted, and is it protected?
 - 2) **Site Maps** – This will show where the land is located, and what type of uses are adjacent. This will also show any easements, power lines, gas lines, water lines, sewer lines, faults, etc...
 - 3) **Predominate wind and sun angles** – These are important to understand when laying out the golf course. The sun angles are especially important with the driving range, and starting and finishing holes. Understanding predominate wind angles are important when looking at safety setback on the slice side of golf holes where predominate winds accentuate the slice.
 - 4) **Is enough land available** – This is not only understanding the amount of land, but also the shape and slope of the land. Long, skinny pieces of property are hard to develop for golf because there is usually not enough room to turn around and head the opposite direction. It is generally understood that a good golf course will require approximately 200 acres. We have done several very good courses on just under 170 acres, but they were core golf courses where you can use safety setbacks differently than on a single or double loaded course.

Obviously, the amount of land depends on the length of the golf course. An executive course with mostly par 3's and 4's, could be done on as little as 100 acres, while a standalone 18-hole, par 3 course could be built on 50 acres.

- 5) **Adjacent property condition and use** – Speaking from experience, building a golf course downwind of a landfill and pig slaughtering operation is not very desirable, even if the land is cheap. As a developer, you will want to have a good understanding of current and future uses of adjacent land, and how those uses will positively or negatively affect your project.
- ii. **What percentage of land is usable**
 - 1) **Slopes** – Is the land gently sloped and conducive to development, or is it steep and difficult (expensive) to develop?
 - 2) **Drainage Areas** – Are there large drainage areas cutting through the site that must be maintained or enhanced?
 - 3) **Wetlands** – Are there environmentally sensitive areas on your land? Do they need to be protected, and what length of setback is required from the edges?
 - iii. **Accessibility** – How easy is it to get to your land? Will the local codes require two points of entrance/exit for safety vehicles? What type of overall traffic will a homebuyer or traveling golfer experience coming and going from your site? Will that affect their interest in your project?
 - iv. **Existing Features** – These can be good or bad. As a golf architect, seeing large trees, creeks and boulders can be wonderful as these features will provide dramatic shots, and natural beauty that cannot be easily create by man. These features are often used as signature holes for marketing. Having the wonderful features can also help from a budget standpoint as creating these elements can be very costly.

However, these features can also create problems depending on the size of the land. For example, say you have a small irregular shaped parcel with a lot of interesting natural features that you want to preserve. Trying to maintain these features can lead to some awkward hole and street configurations if you are so focused on preservation that good golf becomes an afterthought.

The other end of the spectrum is the flat, featureless property. I have had several occasions where an owner apologized for a flat, featureless piece of property that had no trees at all. I then explained that, to me, this is a blank canvas that allows me to be creative rather than confined by existing landforms. The Raven at South Mountain in Phoenix is a perfect example. When we started working on that course, it was a flat cotton field. After moving 700,000 yards of dirt and planting several thousand pine trees, the course was rated as the #2 public course in the golf rich State of Arizona only two months after it opened.

- v. **Percentage of Required Open Space** – Many municipalities have open space requirements for walking paths, parks, detention, etc. I have seen this range from 10% to 40% of total development acreage. Many times, the municipalities will allow a golf course to be defined as open space. These situations are perfect for golf development as the land is not usable for development, and the inclusion of a golf course can raise premiums and profit by large amounts.
- vi. **Shape of Parcel** – This is an incredibly important aspect to golf development. There have been many times that a landowner will show me maps of their

property and I am disappointed by the shape of the land. The reason for this disappointment is the fact that a narrow piece of property can be very difficult when trying to route a high quality golf course.

When routing a golf course, you want to have a good mix of holes running all four directions: north, south, east and west. This way, you will have a good mixture of sun angles, and predominant wind effects. If the land is narrow, it makes it difficult to get a good mix of holes as it is difficult to get in and out of a narrow area.

Another aspect with regards to narrow shape is safety. Most golf holes will have a safety setback of 180-200' from the centerline to the property line. If you have two holes that run parallel to each other, there will need to be a minimum of 210' between centerlines. The minimum total width needed in this scenario would be 570' (180 + 210 + 180) to 610' (200 + 210 + 200). If lots are desired on the sides of the golf holes, this number is much wider. With a narrow parcel, these numbers are often hard to hit.

With this said, the best overall land shape for golf development is square.

vii. **Slope Analysis** – It is very helpful to have the project engineer provide a slope analysis. This is a color coded map that shows the slope of the land in increments of 5%. This means all land with existing slopes of 0-5% is one color, the land from 5-10% is another color, and so on. This map is very helpful when land planning and routing as you can quickly determine what type of grading will be required with hole and street locations.

- 1) **What is overall lay of natural land** – The slope analysis can give you a very easy assessment of the type of land you have. Is it gently rolling, or steep and difficult?
- 2) **How much of the land is suitable for golf and/or development** – The slope analysis will give a quick indication of the usability of the land with regards to the cost to develop. A steep property will be more expensive to develop as more grading is required. Many times, a slope analysis will be the determining factor on whether to purchase the land or not.
- 3) **How does terrain affect product type** – Understanding the lay of the land will have a major impact on the type of golf and/or residential product you create. Areas with steep terrain will most likely be used for shorter golf holes and larger lots where there is less land disturbed for the house. The flatter terrain will be used more for longer holes and smaller lots where higher lot count is needed.

b. **Availability of Water** – No water ... means no project.

i. **Quantity** – In determining the amount of water needed for golf development, the biggest mistake is accounting only for needed water when the grass is established, rather than understanding the grow-in requirements. In hot, arid regions such as Arizona, you may need 1,000,000 gallons per day in the summer months when the turf is established. However, during the grow-in process, you might use 1,500,000 to 2,000,000 gallons per day to keep sprigs and seed moist. This requirement also determines to pumping capacity of the irrigation pump station.

- ii. **Quality** – Large quantities of water are useless if the quality is poor. This is becoming more and more of a problem in golf development as sodium (salts) is increasingly present in well water and treated (gray) water. Having poor water leads to acid injection systems, sulfur burners, and specialized turf such as salt tolerant paspalums.
 - iii. **Costs to Get Water to Site** – If you have access to treated water, how expensive will it be to get it to your site, and how dependable is the source for a constant supply? The same is true when having to dig wells that can be as deep as 2,000 feet below surface. What happens if the wells or pumps go down? Do you have a backup system?
 - iv. **Availability of Treated Water and/or Building a Treatment Plant** – Some very large projects actually look at creating their own golf irrigation water by building water treatment facilities on site. However, it usually takes a long time before there are enough homes creating waste water running through the facility to create the amount needed for irrigation. The developer needs to have a temporary water source to get then through the time it takes to get the facility running at capacity.
- c. **Soil Types and Analysis** – As with water, understanding soil types is imperative to the success of your course. Digging test bores and running soils analysis tests should be done at the outset of any project.
- i. **Expansion and Contraction** – The soil tests will give you a good indication of the expansion and contraction which is important information when trying to balance the cut and fill on the site. If you are moving 500,000 yards on a golf project, having a shrinkage factor 10% versus 15% can be very significant. This information is also valuable if you need to moisture condition building sites.
 - ii. **Stability** – Can the soil on site support 20%, 25%, or 33% slopes when it is saturated, or will sloughing occur? This is a very important number to know when preparing grading plans, and deciding on bunker styles.
 - iii. **Uniformity** - Is the soil consistent throughout the entire site, or will you need to truck topsoil to all the golf holes to make sure there is a consistent growing medium for the grass?
 - iv. **Support Plant Growth** – Does the soil have characteristics that will support high quality turf grasses and trees? This is key as you will be cutting fairway down to ½” and the soil must be able to produce quality turf. This is especially hard in areas where heavy clays are present.
 - v. **Sand Capping Required** – If the soil is poor, you may need to cap the entire site with sand. If capping is required, it is important to have the sand tested for percolation rates, required depth of sand, and grass growing ability. All sand is not equal, and capping sand can get very expensive. Be ready to spend \$1.25-1.75 million dollars if capping is required when the gas prices are as high as they are in late 2005.
- d. **Permitting Ability** – This is another area that is often taken for granted. Many times, you will find a piece of property that is perfect for development, and you wonder why nobody has developed the site. It could be that the site is very difficult to permit. This has happened in Scottsdale, as there are basically no more courses allowed to be built.

Before you buy a piece of property, it would be a very good idea to do a history search to see what type of zoning has been planned, or tried, in the past. You might learn a lot about what type of project will and will not work. This may also give you a sense of direction to take with your development.

- i. **Grading Permits** – It will be the owner’s responsibility to acquire grading permits for the site. Typically, any time you move more than 5,000 cubic yards, you must get a grading permit.
- ii. **Wetland Permits** – This has been the stop sign for many projects. With environmental laws getting tighter every year, wetland and environmentally sensitive area preservation has become a major hurdle in development. If your site has Waters of the United States, you will have to work with the Army Corps of Engineers to determine what you can do on the site. Depending on what type of Army Corps permit is required, this can take anywhere from six months to one year.

It is my recommendation that you find a golf architect and engineering firm with experience in wetlands and dealing with the Army Corps of Engineers. Knowing the requirements of the Corps, and having the ability to route a course to stay away from certain edges can save a tremendous amount of valuable time.

- iii. **Sewer/Septic Permits** – These permits usually depend on the type of project you are doing. A project with large lots (one acre plus), can save a lot of development costs by requirement the individual home builders to install septic systems. Septic systems are usually not allowed with lots smaller than one acre.
- iv. **City Permits** – Each municipality will have permits that are unique for their city. You will simply need to do research to find out what permits you need.
- v. **Clearing Permits** – This can be very specific. Some municipalities will allow you to clear the entire construction site at once. However, I have worked in one county where we were only allowed to have twenty-five acres cleared at a time. This was done to keep dust under control. On this project, we had to clear twenty-five acres, build and grass those holes. Then, we were allowed to clear twenty-five more acres. This did keep dust under control, but the construction time was much longer than normal.
- vi. **Burn Permits** – Some municipalities will allow burning, but most will not. If burning is allowed, there will be stipulations such as wind speed and humidity set in place by the fire marshal. If burning is not allowed, you will either have to haul off the material, chip it and use it for mulch, or bury it under mounds planned on the course. If you bury it under mounds, keep in mind that significant settling can occur if the material is not compacted properly. Even with good compaction, some settling will take place as the material decomposes.
- vii. **Dust Control** – As mentioned above, some cities will have very strict controls on dust in the air. Most municipalities will require water trucks to constantly spread light amounts of water over the site to keep the soil moist and tacky.

7. Creating Value (premiums)

- a. **Golf** – Having lots overlook a golf course will create tremendous premiums. The type of premiums will vary with the beauty of the view, and the safety of the lot.

- b. **Open Space** – Many home buyers do not want to have the safety concerns and pedestrian activity that a golf course can present. It is a good idea to have a good mix of open space and golf lots.
- c. **Putting Course** – These are becoming much more popular. Putting courses will create tremendous premiums as they are beautiful to look at and are very safe as there are no balls flying through the air.
- d. **Water Bodies** – Everyone likes to look at water. Lots on water will bring in extremely high premiums if the water is clean and it is deep enough to not become a mosquito breeding ground.

8. Owner must make decisions in a timely manner – It is imperative that the owner makes decisions without undue delay. This is especially true during construction when equipment, personnel, and architects are waiting for the owner to make decisions.

2. Planning

1. Financial

- a. **Selling lots** – There is a definite thought pattern in selling lots to create maximum profit. Many developers make the mistake of selling all of the best lots up front, and losing any momentum throughout the life of the project.
 - i. **A, B, C, D, E Lots** – All lots should be graded. If possible, try to have a portion of each type each time you open a phase. This will allow buyers of all levels to always have a reason to come to your development to look at lots.
 - ii. **10% rule** – The best rule of thumb is to only put 10% of your best lots up for sale at the beginning of the project. Many times, the owner will put all of the good lots up for sale because they need quick money. They sell all of the good lots and then do not have any good lots left for future buyers. Once word gets out that all the good lots are gone, you now have trouble selling the average lots which can be devastating for future profit.
- b. **Green fees and/or initiation fees** – Be realistic. Daily fee green fees are usually based on \$10.00 per \$1,000,000 in construction costs.
- c. **Budgets for Golf**
 - i. **What are you trying to accomplish?** – Are you trying to have a golf course ranked in the Top 100 in the country, or do you simply want a good catalyst for your development. Each of these has a totally different approach from a cost standpoint.
 - ii. **Does that Approach Make Sense?** – You must understand your market and construction costs. If you have a very average site and mediocre budget, it will be very difficult to have a highly ranked course. On the flipside, if you are in a depressed economy, in a small town in the middle of nowhere, with no airport, it will be difficult to pay for a high end golf course.
 - iii. **Is the Budget Realistic?** – Many times, owners do not realize how much it costs to plan, design and build a golf course, maintenance facility, clubhouse,

and establish turf for the opening. By hiring a good golf architect, you will have the ability to get a reliable preliminary cost estimate. Most architects have good relationships with golf construction companies, and they can talk with those companies to get a good feel for costs in every region of the country.

- iv. **Absorption and Payback** – The key to success is making your money back as quickly as possible. You must set green fees and membership fees at a rate that gives you a chance to create the absorption you desire. Your green fee estimates will dictate construction budgets.
- v. **What Does the Budget Include?** – Make sure the cost estimates include everything from planning to opening of the course. This must include all fees, planning, construction, maintenance facility and the cost of turf establishment. Do not forget the grow-in costs. The clubhouse is something that can be delayed with the use of a temporary facility.
- vi. **Cost Sharing with Developer** – Will you get money from the residential developer to help in the cost of construction? You are providing the catalyst to help them sell homes. Many golf developers will get a small percentage of lot sales to help offset costs.
- vii. **Selecting a Golf Architect** – Much of this depends on what you are trying to accomplish. Some owners feel that they need a big name for marketing if they are in a high rent area with a lot of competition. If you want a big name, be ready to pay anywhere from \$1,000,000 to \$2,500,000 in design fees. Most big name architects demand large construction budgets. Other owners may have projects that simply need a good golf course, without the marketing of a big name, to be successful. For a list of golf architects, contact the American Society of Golf Course Architects.
- viii. **Sodding verses Sprigging/Seeding** - Don't give up on the idea of sodding the course due to initial costs. Many times it will be a wash when you consider sodding verses the cost for increased water, electricity, maintenance, erosion control and time for grow-in and turf establishment.

2. Golf Course and Land Plan

a. Golf Routing

- i. Double Loop
- ii. Out and Back
- iii. Core
- iv. Single Loaded
- v. Double Loaded

b. Type of Lots

- i. **Interior** – On the inside of the development. No premiums.
- ii. **Exterior** – On the outside of the project. Typically against a road or property line. No premiums unless on open space.
- iii. **Cul-de-Sac** – These lots have a premium as less traffic makes them more desirable.
- iv. **Open Space** – Lot is adjacent to open space other than golf. Usually has good premium.

- v. **On Water** – Lot is adjacent to water. Usually has very high premium.
 - vi. **On Golf** – Lot is adjacent to golf. Usually has very high premium.
- c. **Grading (Preliminary Grading)** – This is maybe one of the main areas that our firm goes a step further to create benefit for the owner. When we are laying out a golf course, we will look closely at the type of grading that is required not only for golf, but for the lots as well. We will compare the grading and see how we can create good views and optimal premiums. Then, we work with the engineers to provide preliminary grading plans that show future grading for the entire development site. The reason this is important is if future phase development creates grading impacts on the golf course that is already built. Many times, a developer will want to grade only the area within the golf envelop. That attitude is obvious due to the desire to save money up front. However, it can create problems in the future if you do not have forward thinking.

Many times, there will be a slope that has golf next to lots. To make the golf course work, you might not have to do any grading at all on the property line. So, you build the golf course, install irrigation and plant a lot of trees.

Then, three or four years later, you find out that you need to do significant grading to make the lots work. This grading will reach out into the golf course, which means trees will be lost, and irrigation will be damaged. These impacts can have a negative impact on the aesthetics, playability and enjoyment of the course.

This approach does cost the owner more money up front because we are doing work that would normally be done several years down the road. However, the potential future savings of time, money and effort far out way the sooner than expected expense of planning for future lots.

For example, I recently worked on a project where the lot grading was having a lot of difficulty in balancing. We were being asked to change the golf course grading to supply dirt for lots to try to eliminate extremely long hauls shown by the engineers. We could tell that this was not only slowing the entire project down, but it was also increasing costs and headaches for the owner and golf course contractor.

We went to the owner and explained that we could help this problem. Since we had not started any golf grading on the western half of the project, we took the entire west half and studied the grading of the lots and golf course as one unit. We then created a grading plan that produced a balance for the entire west side of the development, and it handled all of the drainage issues as well. The added result was that we were not only able to plan for all drainage pipe entrances to the course, and account for their flows, but we knew exactly where we would have future impact for grading along the property lines. As we were building the golf course, we found the areas of conflict and graded 10-15 feet into the lot based on the lot grading plan. This very small amount of grading enables the owner to develop the site in the future without having to touch the golf course. We were also able to use very short hauls to create stockpiles in the exact locations that they would be needed for the future development. Again, this approach did cost the owner a little bit more up front, but it will save tremendous time and money in the future, as they will have no impacts to slow them down.

- d. **Planning for the future** – Always think ahead. Try to anticipate any problem that could crop up in the future and plan a solution before you start the earthwork process.

- i. **Study of future development parcels** – As mentioned above, it is a good idea to think ahead of the current phase you are working on to see how future development will effect the golf course and vice versa. If possible, try to understand what type of grading it will take to create a complete balance situation with the golf course and development. It will require extra money up front to study future engineering, but it is money well spent.
 - ii. **Study of future drainage corridors** – One of the biggest problems with not planning for the future is drainage corridors. If a residential development is planned around a golf course, it is inevitable that the drainage will somehow make its way to the course. It is imperative that you know beforehand where that water will enter the golf property and how it will work its way through to the exit point. You do not ever want the drainage water to affect the greens, bunkers, or landing areas. If possible, plan to have the water cross the course between the tees and landing area.
 - iii. **Future Roads that need to be graded with golf** – When a future road comes in contact with the golf property line, try to preliminarily grade the road. This preliminary grading will not only allow you to work the grades into the course, it will also let you see what type of views people will have when they drive by the course. If it does not adversely affect the playability of the course, you may want to make changes to the golf course to maximize views into the site.
- e. **Drainage** – Many times, portions of a golf course will act as a detention basin to increase lot counts. When doing this, always understand locations of entrance and exit of water, affects if dirty (greasy/oily if coming off of streets) water on turf, volumes and velocities. Basically, any sizable water amounts traveling at more than seven miles per hour will damage turf. It is also a good idea to have drainage pipe for greens and bunkers at least one foot above the high water mark of a basin if the pipe empties into the basin. This will keep dirty water from backing up in the drainage pipe and corrupting the sand and/or greens mix.
- f. **Landscaping** – Work with the project landscape architect to make sure that landscaping on the golf course will match landscaping in the development. If the golf architect and landscape architect do not work together, it is possible to create a landscape that has a definite seam between the golf and development that does not work well with the eye.
- g. **Easements across course and when to install pipes** – If there are easements with pipes that cross the golf course, always install the pipes during construction of the golf course. This is to be done even if the pipes are not going to be used for several years. The reason for this is to eliminate the need to close the course, dig up the golf course, possibly damage irrigation and drainage lines, damage to electrical wires to irrigation, try to jet the trench (shoot water into the trench to get it to settle) to make it even with surrounding turf, and resod. This is an additional upfront cost, but it will be much cheaper in the long run than losing golf revenue, and repairing the course after installation.
- h. **Safety Setbacks** – In this time of lawsuits, it is good to understand the need for, and elements that affect safety setbacks. There are many factors that affect safety setbacks. It is also important to understand that there is inherent risk with golf, and there is really no way to make a golf course completely safe, because you are dealing with people making judgment decisions, and a ball that will go offline very often.
 - i. **Balls Fly Further** – In this period of large driver heads and improved shafts, players are hitting the ball further than ever before. Not only is the ball traveling

further down the fairway, but it also travels further offline. This means that more land is required to accommodate for the wider variance in golf shots.

- ii. **Type of Shot** – A driver hit full force is going to go offline much further than a shorter approach played to the green. The safety setback for a driving area is going to need to be slightly wider than the setback around the green. This is especially true if the hole is short to medium length and a shorter iron is being played to the green.

Another aspect to shot type is whether a draw or a fade is being hit and if a player is trying to cut a corner. A draw will typically travel further than a fade and will definitely roll further. It is also important to look at the setback of lots at the dogleg if a player may try to cut the corner. When cutting the corner, the player will hit the ball closer to the homes.

- iii. **Predominant Wind** – A shot played into the wind will go offline further if there is significant left to right spin on the ball. Also, if a shot is played from left to right, and the predominant wind blows from left to right, the larger safety setback on the right side must account for the shot type and wind.
- iv. **Hazard Placement** – Even though golf architects will place hazards in locations to affect scoring, the average player will often play away from trouble. This means that a lake on the right side of the fairway will lead to more danger on the left side as people account for their slice and play away from water. This must be accounted for when developing safety setbacks.

- 3. **Clubhouse** – Many golf courses have gone bankrupt because the owner spent too much money on the clubhouse. The main reason for this is not knowing the exact purpose of the clubhouse on your site. Is it simply a golf pro shop with a very small grill, or do you intend to make money with a restaurant? If you plan on having a restaurant, you must be sure there is strong demand as food and beverage sales usually are not what an owner expects. Following are some of the questions you need to answer.

- a. **What will it be used for**

- i. **Golf Pro Shop** – Do you intend to have a green fee register and sell merchandise like clubs and shoes, or will you simply sell shirts and hats? The answer will determine the size of the shop.
- ii. **Small Grill Area** – A small area with just a few tables. Menu consists of quick sandwiches, drinks and snacks.
- iii. **Large Dining Area (Restaurant)** – This will serve full meals. You should know before building this restaurant that there is a need beyond golfers. There must be a need for dining for dinner and potentially Sunday brunches.
- iv. **Banquet Hall** – This can take up a lot of room, but it can be a source of revenue with wedding receptions, and banquets. Again, there must be a known need for this before you spend the money for this.

- b. **Size** - The size of the locker room depends on how many extras you want to include.

- i. **Locker Rooms with Full Showers** – Typical for private clubs or high end daily fee courses.
- ii. **Dining** – As stated above, you must know the need.

- iii. **Indoor/Outdoor Space** – Many times, a good clubhouse architect can make the clubhouse feel bigger by tying together indoor and outdoor spaces. For example, a dining grill room can appear much bigger if it flows to an outdoor sitting area. The outdoor area is much cheaper to build and maintain.
 - c. **When to Build the Clubhouse**
 - i. **Open Full Clubhouse at Golf Opening** – This is a large commitment by the owner. Depending on the size of the clubhouse and the decision to sod the course or not, the construction of the clubhouse can almost start at the same time as the golf construction.
 - ii. **Open Golf Course with Temporary Clubhouse** – This is more common. This scenario is where the owner will build a temporary clubhouse, or starters building and maybe a small grill area. The owner then takes their time in the planning and construction of the clubhouse. Often, the owner will learn about the users of the course, and be able to plan accordingly.
 - d. **Tying the Clubhouse to Another Building** – There are advantages to having the clubhouse in the same building or in the same general location of other buildings.
 - i. **Share Parking** – Many municipalities have parking space requirements. Often, these requirements can be much more than would ever be needed for a golf course. If you have the clubhouse close to another building, you can many times share the number of parking spaces, which reduces cost and required acreage.
 - ii. **Share Restrooms** – Just like with parking, sharing bathrooms can save a lot of space and money.
 - iii. **Share Restaurant or Grill Area** – The cost of kitchens is very high. Having the opportunity to build one kitchen to serve several uses is very helpful.
- 4. **Marketing** – When do you start marketing? Do you wait until the golf course is open, or do you start marketing during construction and grow-in to create a feeling of anticipation for the course?
- 5. **Insurance** – You will want to have full insurance before starting construction. Building a course is hazardous work, and it is common for workers to get hurt on the job. Even though the construction companies are required to have insurance, you will want to added security.

3. Drawings and Submittals Phase

- 1. **AutoCAD** - In today's workplace, you must have plans done in AutoCAD to allow the golf architects, clubhouse architects, irrigation designers and engineers to be able to communicate electronically. It also makes the bidding process easier as you can email files rather than sending bulky paper plans.
- 2. **Construction Documents**
 - a. **Grading Plans** – Depending on the severity of the topography, you will want the golf course grading plans to be done at contour intervals of one to two feet. The tighter the plans, the better bidding you will get as there is less guesswork. The actual drawings should be done between the scales of 1" = 100' to 1" = 60'.

- b. **Irrigation Plans** – The variance in costs for irrigation can be staggering. With the cost of pipe and water rising so quickly, it is amazing how much money can be spent irrigating a course. On a typical golf construction project, the irrigation system is the most expensive item. You must also remember to size the pump station based on water requirements during grow-in rather than water required to maintain the course.
 - i. **How Fancy of a System do you Desire** – This basically comes down to how much money you want to spend. A bigger budget equals closer head spacing, which will lead to better water coverage. You also need to decide how to handle property lines. Do you want to use half heads and keep the look tight, or do you want to save money and use full circle heads which will lead to “scallops” in the grass.
 - ii. **How are Common Areas Treated** – Before irrigation plans are finished, you will want to know exactly how common areas are going to be irrigated. Will they be tied into the golf course system, or will there be a separate system that handles common areas, streetscape, and community landscaping? Most of the time, the golf course owner does not want to be responsible for watering common areas, as it makes their water usage look much higher than normal, which can lead to money.
 - iii. **Acid Injection or Sulfur Burning** – If the water quality is poor, you will have to treat the water at the pump station. A strong majority of pump stations being installed today will have acid injection systems, as it makes fertilizing the course much easier.
- c. **Landscape Plans** – Typically done at a scale of 1” = 100’. Special care should be taken to make sure all plants will do well in the soil on site.
- d. **Green Details** – Many architects will do these at contour intervals of six inches, or will use a 10’ grid pattern. These plans should be very detailed so that you know the areas the architect intends for cupping areas and drainage.
- e. **Grassing and Mowing Pattern Plans** – These are useful in areas where different types of grasses are being used. In the South where Tifway 419 is used for fairways and roughs, these plans will be a good reference for the owner to make sure they are mowing the fairway in the shape it was intended.

3. Maintenance Facility

- a. **Size** – Most typical maintenance areas will be just over an acre. This will include the maintenance building, staff parking, storage bays, fuel stations and storage. What type of equipment will be used? How much equipment will you have? How big is the mechanics shop going to be? Will the washing areas be inside or out? Will there be a lounge/lunchroom for the workers? Will there be a small kitchen?
- b. **Exterior Fencing** – It is usually a good idea to block views into the maintenance area. As an owner, you just need to decide if the fence will be cinder block, or chain link with slats, or a wood privacy fence. It is all a function of cost, and aesthetics.
- c. **For Golf or Entire Development** – If the maintenance area is being used as the staging yard for the entire development, you will obviously want the size to be increased. How much, depends on the amount of equipment and materials to be stored.

- d. **Drainage** – As the site is usually full of oil and grease, be very careful how the drainage of the maintenance areas is designed. All new courses are required to have grease traps to control runoff when machines are washed. You do not want the greasy water running onto the golf course, or into a water body.

4. Testing

- a. **Water** – This is vital. Absolutely, get the water tested as soon as possible. This can be the make or break element of the entire project.
- b. **Soil** – As with water, get this tested as soon as possible. Many projects have been scrapped once the owner found out the shrink and rise factors with soil and the related costs to make building sites stable. It is also important to know if the soil will support high quality turf mowed at short heights. If the soil is poor, you will need to sand cap the course, which is expensive.
- c. **Greens Mix** – The golf contractor is to test all greens mix to make sure it falls within USGA Specifications for greens material.
- d. **Bunker Sand** - The golf contractor is to test all bunker sand to make sure it falls within USGA Specifications for bunker material.

4. Bidding and Construction Phase

1. Bidding the Course

- a. **Competitive Bid** – You will want to have several highly qualified golf contractors bid the project. To keep the process small enough to keep from spending all day on the phone during the bidding process, I only have four or five companies bid each project. This allows me to keep all parties aware of any changes and the owner knows they are dealing with quality companies. Most architects will have very strict guidelines on who can and cannot bid the project. The bidding process takes about four weeks, followed by a two week negotiation period. Once this is done, the contractor will have a twenty-one day notice to proceed.
- b. **Negotiate with One Contractor** – If you do not have time to bid, or if you have one particular company that you are comfortable with, you may want to forego the bidding process and simply negotiate with one contractor. This is usually done on a receipt (cost) plus 10%. This is also liked by the architect as they do not have to go through the whole bidding process.

- 2. **Bidding Irrigation** – After hurricanes Katrina and Rita struck the south coast, the refineries were damaged. This led to a severe shortage of PVC pipe for drainage and irrigation. The price fluctuated so badly on irrigation pipe that some projects had to be delayed. As a result, some golf contractors are now bidding irrigation systems with the stipulation that the owner buys the pipe.

- 3. **Construction of the Course** - Every golf course architect will tell you that there are two questions that we often get asked before any design work has begun, that drive us up a wall. “How long will it take to build my course?” And, “How much does a golf hole cost to build.”

- a. **Timing** – This is totally dependent on your climate. Building a golf course in Phoenix will happen much quicker than building one in Minneapolis where construction would be shut down during the winter months. The cold weather would also lengthen the grow-in period by at least a year if the course was seeded verses sod.

The timing also depends on the topography and natural features of the site. Steep rocky sites with a lot of trees will obviously require more time than building on gently rolling sand hills. Extensive bulk earthworks will also lengthen the time period versus a course that lays naturally on the land.

The timing also comes down to the amount of extra features you desire. Building rock walls, fancy waterfalls and planting extensive landscapes takes significant amounts of time. From a timing standpoint, you often want to start construction in areas where the difficult work will take place. This gives you time to work on the hard areas, while the easier areas come together faster.

Another aspect of timing is the construction company you choose. A large company with a lot of equipment and manpower will be able to work faster. The larger company may cost more than a small group, but the timing may be well worth the additional costs.

- b. **Budgets** – How much does each hole cost? Are you talking about a 585 yard, par 5, up the face of a rocky hillside, or are you talking about a 150 yard, par 3, built in an open prairie? There is absolutely no comparison between the two. That is why it is so difficult to give preliminary cost estimates. Every architect knows generally how much greens, tees and bunkers cost per square foot. We all know generally what a typical irrigation system will cost. The problem comes with trying to tie all of the costs together for your site when we have not had a chance to look at preliminary design.

All architects have bid sheets that we use for preliminary cost estimates. Once we get to know a site, we can talk with golf contractors who are familiar with the area, and come up with a pretty tight range for basic costs. From there, the extras are figured in.

We can also take the other approach of working to a specific budget. In this scenario, we will fill out the bid form with the basics of golf construction. That tells us a bottom line number. If there is any money left over, you start to look at areas like landscaping, rock walls, water features, etc., where you may want to make the course nicer.

Another huge factor in budgeting is knowing what the budget includes. If you tell an architect the budget is \$12,000,000, we don't always know what that means. There are five basic cost areas that you must account for. They are: Permits and Fees, Golf Construction, Grow-In, Accessories (signage, furniture, etc.), and the Clubhouse. When you tell an architect what your budget is, they must know how many of the five areas this number is to cover and what the specific budgets are for each area.

4. **When to Hire Maintenance Personnel**

- a. **Golf Superintendent** – It is definitely my recommendation that the greens superintendent be brought in as soon as possible. This will allow them to watch construction and to know exactly where, and how, things are being built. As a result, the greens superintendent must be on board as soon as any pipe is being buried in the ground.
- b. **Greens Keeping Staff** – Once the turf needs to be mowed regularly, you will want to hire maintenance staff. You will higher more people the closer you get to the course opening where maintenance is at its highest,

5. **Grow In and Turf Establishment** – As I have mentioned earlier, this is probably the area that gets more owners in trouble than any other. For some reason, most people think you grass the course and then start playing. Nothing could be further from the truth. In truth, you actually decide on the grand opening date based on the very last hole you grass. The smart owner will wait

until every hole is in good condition. This may take a full year depending on the climate you are in. This means that for a full year, you are paying for water, electricity, fertilizer, maintenance workers, etc...

There are many different ways to look at the point of strong turf. I have heard some superintendents base it on 2,000 hours of sunlight for each hole. I have seen superintendents that base the opening on root development. Every superintendent and every climate is different. But, I do know this, if you open the golf course before the turf is healthy, there is a good chance your course will never recover. Even if you jump the gun by as little as one month, the holes that have weak turf will get stomped to death under the foot traffic, and they never have a chance to recover once the course is open and players are walking on the grass.

- a. **Electricity** – It takes electricity to run the irrigation pump. During grow-in, the pump will run longer than at any other time as you constantly have to sprinkle the turf to keep the tender sprigs and seed moist. The key is to run the system only long enough to keep the soil and sprigs moist. If you run the system too long, the soil will get saturated and you will begin to have erosion that must be fixed regularly.
 - b. **Water** – Depending on temperature, wind, soil moisture, and turf area, you will be spraying a huge amount of water during the grow in period. Some courses in hot regions will use up to 2,000,000 gallons per day to keep the sprigs moist on a hot, windy day. Holes that are sodded use much less water as you are not trying to keep tender sprigs moist all day.
 - c. **Maintenance Staff** – As the grass is growing, you will need someone to care for it. Depending on how many acres are growing, you will need to hire enough workers to properly maintain the course. If it is not properly mowed, the grass will not grow in as thick and healthy as it should. The amount of workers will grow as the turf grows and you get closer to the grand opening when you have to start keeping the course in good condition all the time.
 - d. **Erosion Control vs. Sod** – Sodding the entire course is expensive. However, when you look at the costs of growing in the course, the time it takes to grow in the course, and the amount of erosion control that must occur during that time, sodding costs can be a wash. If you have steep slopes that have been sprigged and a heavy rain comes, your workers will begin the task of replacing all the sprigs that have washed away, and maybe even having to do some reshaping if a lot of soil washed away. If that same slope was sodded, the rain would not result in any additional costs or repair time.
 - e. **Time** – Everyone is short of time. When you sod the entire golf course, you cut the grow-in period basically in half or more. This means all of the water, electricity and fertilizer costs are reduced. And, you get the course open much quicker which produces revenue.
6. **Course Signage and Furniture** – Typical signage on the golf course will show players where the 1st and 10th holes are, as well as letting golfer know the length of each hole. How you do that is your choice. Many owners will have simple signs and yardage plaques, while some opt for fancy stone carvings with hole drawings and yardages. These can be expensive, but they look very nice as well.

You may also want to have trash cans and ball washers regularly located at tees. Benches are often a good idea at par three tees where waiting for the group ahead of you is not uncommon. Signs directing people to stay out of environmentally sensitive areas are becoming more and more common.